

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the present Application:

Listing of Claims:

Claims 1 – 19 (canceled).

20. (currently amended): An intraluminal material removal device comprising a rotatable cutter assembly in communication with a drive shaft for receiving rotational torque from the drive shaft, the cutter assembly comprising an adjustable diameter cutter having a plurality of radially pivotable cutting blades, wherein ~~the adjustable diameter cutter has a first diameter when rotated in a first direction and a second diameter, when rotated in a second direction opposite the first direction~~ each of the cutting blades has a beveled edge for cutting.

21. (currently amended): The device of claim 20, wherein the adjustable diameter cutter has a plurality of material removal ports in communication with a lumen, wherein the material removal ports are located between the cutting blades and the material removal ports permit flow through when the adjustable diameter cutter is expanded.

22. (canceled)

23. (currently amended): The device of claim 20, wherein the cutter assembly further comprises a fixed diameter cutter ~~distally positioned from the adjustable diameter cutter, the fixed diameter cutter~~ having a plurality of fixed cutting blades ~~and a plurality of material removal ports in communication with a lumen.~~

24. (currently amended): The device of claim 23, wherein the cutting blades of the adjustable diameter cutter or the fixed diameter cutter have beveled edges ~~and to~~ operate using the principle of differential cutting.

25. (canceled)

26. (currently amended): The device of claim ~~25~~ 20, further including a plurality of stop faces ~~that contact the cutting blades to define the first diameter of the cutting head~~ when the cutting blades are in a smaller diameter condition ~~pivoted.~~

27. (currently amended): The device of claim ~~25~~ 20, further including a plurality of support faces ~~to that~~ that contact the cutting blades when the cutting blades are in a larger diameter condition ~~adjustable diameter cutter is in the second diameter~~.

28. (currently amended): An intraluminal material removal device comprising: a rotatable cutter assembly ~~in~~ operably coupled to a distal end of a rotatable drive shaft, the cutter assembly comprising an expandable diameter cutter having a plurality of ~~cutting~~ blades pivotable between a tangential orientation and a radial orientation ~~on axes parallel to a central longitudinal axis of the cutter assembly~~.

29. (currently amended): The device of claim 28, wherein the cutting blades of the expandable diameter cutter ~~has a design to~~ operate using the principle of differential cutting.

30. (currently amended): The device of claim 28, wherein the expandable diameter cutter has a plurality of material removal ports in communication with a lumen, wherein the material removal ports ~~separate the cutting blades~~ are located between the cutting blades and permit flow through when the cutting blades are positioned in a radial orientation.

31. (currently amended): The device of claim 28, further including a plurality of stop faces ~~to define the diameter of the cutting assembly~~ that contact the cutting blades when the cutting blades are ~~pivoted to an expanded position~~ positioned in a radial orientation.

32. (currently amended): The device of claim 31, further including a plurality of support faces ~~to that~~ that contact the cutting blades when the cutting ~~assembly is~~ blades are in a retracted position.

Claims 33 – 39 (canceled)

Add the following new claims:

40. (new): The device of claim 23, wherein the fixed diameter cutter is positioned distally from the adjustable diameter cutter.

41. (new): The device of claim 40, wherein the fixed diameter cutter has a frusto-conical cross-sectional configuration and a series of raised cutting flutes.

42. (new): The device of claim 20 or 28, additionally comprising a temperature sensor mounted on or in proximity to the rotatable cutter assembly.

43. (new): The device of claim 20 or 28, wherein the drive shaft is a non-compressible multi-filar metallic coil.

44. (new): The device of claim 20 or 28, additionally comprising a magnetic coupler assembly mounted to the drive shaft at its proximal end to provide detachable coupling of the drive shaft to a drive train.

45. (new): The device of claim 20 or 28, wherein the drive shaft comprises a helical coil having a polymer layer sealing an outer and/or inner surface of the drive shaft.

46. (new): The device of claim 45, wherein the polymer layer comprises polytetrafluoroethylene (PTFE).

47. (new): The device of claim 20 or 28, wherein the cutting blades are arranged in a radially symmetrical configuration.

48. (new): The device of claim 20 or 28, additionally comprising a bearing assembly coupling the cutter assembly to a conduit catheter, whereby the cutter assembly rotates freely around a central axis and a fluid-tight junction is formed between the conduit catheter and the cutter assembly.

49. (new): The device of claim 20 or 28, wherein the cutting blades are constructed from a material selected from the group consisting of: metals, metal alloys and ceramics.

50. (new): The device of claim 20 or 28, wherein the cutting blades are constructed from a material selected from the group consisting of: series 300 vanadium steel; series 400 vanadium steel; nickel-titanium; titanium; titanium-containing metals; oxide ceramics; and combinations thereof.

51. (new): The device of claim 20 or 29, wherein the beveled edges are sharpened.

52. (new): The device of claim 20 or 28, wherein the cutting blades comprise blade sections mounted on rods that are pivotably seated on a central block.

53. (new): The device of claim 20 or 28, wherein the cutter assembly has a central lumen.

54. (new): The device of claim 53, additionally comprising a plurality of circumferentially interspaced ports communicating with the lumen.

55. (new): The device of claim 20, wherein the blades are pivotable between a smaller diameter configuration in which the blades are in a tangential orientation and a larger diameter configuration in which the blades are in a radial orientation.

56. (new): The device of claim 55, wherein the blades are pivotable between the tangential and radial orientations by changing the direction of rotation of the cutter assembly.